

## REMARKS

Claims 1-72 are pending.

In the Office Action dated October 21, 2008, the drawings were objected to as containing a reference number not included in the specification; the specification was objected to because of informalities; claims 2-4, 6-11, 15, 18-30, 32-35, 37, 49-55, 57-60, and 63 were objected to because of informalities; claims 41 and 62 were provisionally rejected on the grounds of nonstatutory obviousness-type double patenting over U.S. Patent Application No. 10/677,159; claims 8, 17, 34, 38, 39, 52-60, and 62-72 were rejected under 35 U.S.C. § 112, ¶ 2 as being indefinite; claims 1-72 were rejected under 35 U.S.C. § 101 as being directed to nonstatutory subject matter; claims 1, 4-21, 23, 25-43, 45, 49-64, 66, and 70-72 were rejected under 35 U.S.C. § 102(b) as being anticipated by Bugnion (U.S. Patent No. 6,075,938); claims 2, 3, 24, 46-48, and 67-69 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Bugnion; and claims 22, 44, and 65 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Bugnion and Bugnion02 (U.S. Patent No. 6,496,847).

## DRAWING OBJECTION

Paragraph [0052] on page 14 of the application as filed has been amended to refer to reference numeral "810" found in Fig. 8. Therefore, the drawing objection has been overcome.

## OBJECTION TO THE SPECIFICATION

Paragraphs [0038], [0040], [0047], and [0048] have been amended as suggested by the Examiner.

Also, ¶ [0044] on pages 11 and 12 of the application as filed has been amended to indicate that "IOCTL" is an abbreviation for "input/output control."

Paragraph [0001] of the application as originally filed has been amended to capitalize "WINDOWS" and "LINUX" as suggested by the Examiner.

With respect to the statement on page 3 of the Office Action that ¶¶ [0047] and [0048] do not incorporate by reference the cited applications, note that the applications identified in these paragraphs were already incorporated by reference earlier in ¶¶ [0038] and [0040].

In view of the foregoing, all objections to the specification have been addressed.

### CLAIMS OBJECTIONS

The claims have been amended to address the objections raised by the Examiner on pages 4-6 of the Office Action. Therefore, withdrawal of the objections is respectfully requested.

### OBVIOUSNESS-TYPE DOUBLE PATENTING REJECTION

Claims 41 and 62 of the present application were provisionally rejected on the ground of nonstatutory obviousness-type double patenting over claims 44 and 56 of copending Application No. 10/677,159 (hereinafter "'159 application"). Since the '159 application has not yet issued (in fact, claims of the '159 application have been finally rejected and a Notice of Appeal has been filed), it is premature at this point to determine whether or not the obviousness-type double patenting rejection is proper, since it is not known at this stage what claims will issue in the '159 application, or whether any claims will issue.

Therefore, withdrawal of the provisional obviousness-type double patenting rejection is respectfully requested until the appropriate time.

### REJECTION UNDER 35 U.S.C. § 112, ¶ 2

The claims have been amended to address the § 112, ¶ 2, rejection made on pages 8-10 of the Office Action.

With respect to claim 68, however, it is respectfully submitted that the rejection of the phrase "a part of the memory" is improper. A person of ordinary skill in the art would clearly understand what is meant by allocation of a part of memory, since a memory can have different parts allocated to different entities. It does not matter what part of the memory is allocated, so long as some part of the memory is allocated. In view of the foregoing, it is clear that the scope of claim 68 would be ascertainable by a person of ordinary skill in the art. Therefore, withdrawal of the rejection of claim 68 is respectfully requested.

### REJECTION UNDER 35 U.S.C. § 101

The claims were rejected under § 101 as being directed to non-statutory subject matter as purportedly not appearing to be directed to "a tangible result so as to constitute a practical

application of the idea.” 10/21/2008 Office Action at 11. The test articulated by the Office Action in rejecting the claims under § 101 is incorrect. It is respectfully submitted that the claims clearly satisfy the machine-or-transformation test articulated by *In re Bilski*, 545 F.3d 943, 956 (Fed. Cir. 2008) (*en banc*). As held by *In re Bilski*, a “claimed process is surely patent-eligible under § 101 if: (1) it is tied to particular machine or apparatus, or (2) it transforms a particular article into a different state or thing.” *Id.* at 954.

Here, all claims satisfy at least the first test articulated by *In re Bilski*, namely, that all claims are tied to particular machine or apparatus.

In view of the foregoing, it is clear that the claims are directed to statutory subject matter.

#### REJECTIONS UNDER 35 U.S.C. §§ 102 AND 103

Claim 1 recites a method of using a virtual machine monitor in an operating system on computer hardware in a computer, where the method comprises interposing the virtual machine monitor between the computer hardware and the operating system at runtime, where the interposing occurs **after booting of the computer**.

Bugnion clearly does not disclose the claimed subject matter, since Bugnion appears to suggest that the hardware of a machine is virtualized from bootup to shutdown. *See* Bugnion, 4:24-25 (virtual machine monitor virtualizes all the resources of the machine). This is an indication that all resources of the machine are virtualized at all times. Thus, Bugnion clearly does not provide any teaching of interposing the virtual machine monitor between the computer hardware and the operating system at runtime, where the interposing occurs **after booting up the computer**.

Therefore, claim 1 is clearly not anticipated by Bugnion.

Independent claims 31 and 52 are similarly allowable over Bugnion.

Independent claim 19 is also not anticipated by Bugnion. Claim 19 recites a method of using a virtual machine monitor and operating system on virtualized computer hardware, where the method includes devirtualizing the computer hardware at runtime of a computer containing the virtualized computer hardware.

As purportedly disclosing the subject matter of claim 19, the Office Action cited column 11, lines 17-19, of Bugnion. Column 11 of Bugnion states that an entity called “Disco” contains

a simple scheduler that allows the virtual processors to be time-shared across the physical processors of the machine. Bugnion, 11:8-10. Bugnion also states that the scheduler cooperates with memory management to support affinity scheduling that increases data locality. *Id.*, 11:10-12. The cited passage also notes that Disco assigns special semantics to the reduced power consumption mode of the MIPS processor, and that such reduced power consumption mode is used by the operating system whenever the system is idle. *Id.*, 11:15-18. Column 11 of Bugnion also notes that Disco will deschedule the virtual CPU until the mode is cleared or an interrupt is posted. However, descheduling a virtual CPU appears to merely refer to the fact that a physical processor is not assigned to a particular virtual processor—this descheduling does not constitute **devirtualizing** computer hardware at runtime of a computer.

Applicant's argument presented above are consistent with a concession made by the U.S. Patent and Trademark Office in copending U.S. Serial No. 10/676,922, in which the Examiner in that application conceded that Bugnion "does not teach devirtualizing the I/O device at runtime." 6/4/2007 Office Action in U.S. Serial No. 10/676,922, page 8.

Therefore, it is respectfully submitted that claim 19 is clearly not anticipated by Bugnion. Independent claims 41 and 62 are similarly not anticipated by Bugnion.

Independent claim 61 is also not anticipated by Bugnion. Note that claim 61 recites an I/O driver having first and second modes of operation, where the I/O driver is operable in the first mode to interface directly between the operating system and the I/O device, and the I/O driver is operable in the second mode to interface between the operating system and a corresponding I/O driver of the virtual machine monitor.

Although Bugnion refers to device drivers, it is noted that Bugnion nowhere refers to a device driver that is able to operate in two different modes in the manner recited in claim 61. As purportedly disclosing the subject matter of claim 61, the Office Action cited the following passages of Bugnion: column 11, lines 48-51; column 14, lines 38-54; and column 17, lines 14-28. The cited column 11 passage of Bugnion refers to handling hardware interrupts directly by the VMM through its own device drivers. The cited column 14 passage of Bugnion refers to adding special device drivers into the operating system. The cited column 17 passage of Bugnion refers to Disco's monitor call interface reducing the complexity and overhead of accessing I/O

devices. The cited column 17 passage also notes that the monitor call interface provides a view of an idealized device, and the implementation of drivers is straightforward.

However, none of the passages cited by the Office Action provide any hint of an I/O driver that is operable in **two modes** of operation in the manner recited in claim 61. Therefore, claim 61 is clearly not anticipated by Bugnion.

Dependent claims are allowable for at least the same reasons as corresponding independent claims. In view of the allowability of base claims over, it is respectfully submitted that the obviousness rejections of dependent claims over Bugnion and other references have been overcome.

Allowance of all claims is respectfully requested.

The Commissioner is authorized to charge any additional fees and/or credit any overpayment to Deposit Account No. 08-2025 (200208633-1).

Respectfully submitted,



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